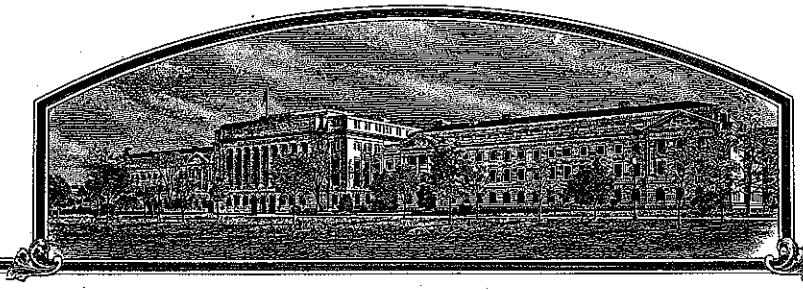

No. 200600071

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

North Carolina State University U.S. Government as represented by the Secretary of Agriculture

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC FURNISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR NG IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE POSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PR THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHA D BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER ATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

PEANUT

'Brantley'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this eleventh day of December, in the year two thousand and six.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

y of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions*

Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER(S)
North Carolina State University

U.S. Government as represented by the Secretary of Agriculture

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
N00090ol

3. VARIETY NAME
Brantley

4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)
NCSU, Office of Technology Transfer, Campus Box 8210, Raleigh, NC 27695-8210, USA

5. TELEPHONE *(include area code)*
(919) 515-7199

6. FAX *(include area code)*
(919) 515-3773

FOR OFFICIAL USE ONLY
PVPO NUMBER
200600071

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*
State and Federal Government Institutions

8. IF INCORPORATED, GIVE STATE OF INCORPORATION

9. DATE OF INCORPORATION

FILING DATE
January 23, 2006

FEES RECEIVED
FILING AND EXAMINATION FEES:
$518- 3864-
DATE 1/23/06 2/14/06
CERTIFICATION FEE:
$ 768 -
DATE 8/21/06

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*

Roger Crickenberger, Ph.D.
Associate Director
North Carolina Agricultural Research Service
North Carolina State University
Campus Box 7643
Raleigh, NC 27695-7643

Daryl Bowman
North Carolina Foundation Seed Producers, Inc.
8220 Riley Hill Rd.
Zebulon, NC 27597

Richard J. Brenner
Assistant Administrator
USDA-ARS-OTT, 5601 Sunnyside Ave., Rm. 4-1159
Beltsville, MD 20705

11. TELEPHONE *(Include area code)*
(919) 515-2717

12. FAX *(Include area code)*
(919) 515-7745

13. E-MAIL
roger_crickenberger@ncsu.edu

14. CROP KIND (Common Name)
Peanut

16. FAMILY NAME (Botanical)
Fabaceae

15. GENUS AND SPECIES NAME OF CROP
Arachis hypogaea

17. IS THE VARIETY A FIRST GENERATION HYBRID?
☐ YES ☒ NO

18. DOES THE VARIETY CONTAIN ANY TRANSGENES? ***(OPTIONAL)***
☐ YES ☒ NO
IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERICALIZATION. _____

19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED
(Follow instructions on reverse)

a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of Variety
d. ☒ Exhibit D. Additional Description of the Variety (Optional)
e. ☒ Exhibit E. Statement of the Basis of the Owner's Ownership
f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)*
g. ☒ Filing and Examination Fee ($3,652), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)*
☒ YES (If "yes", answer items 21 and 22 below) ☐ NO *(If "no", go to item 23)*

21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES?
☒ YES ☐ NO
IF YES, WHICH CLASSES? ☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☒ YES ☐ NO
IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS.
☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED
(If additional explanation is necessary, please use the space indicated on the reverse.)

23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
☒ YES ☐ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)

24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)?
☒ YES ☒ NO RAD 8/3/2006
IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER		SIGNATURE OF OWNER	
NAME (Please print or type)		NAME (Please print or type)	
Donna M. Cookmeyer		**Richard J. Brenner**	
CAPACITY OR TITLE	DATE	CAPACITY OR TITLE	DATE
Director **Office of Technology Transfer** **North Carolina State University**	1/9/06	**Assistant Administrator**	1/19/06

200600071

INSTRUCTIONS

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to **reproduce** the variety, or for tuber reproduced varieties verification that a viable *(in the sense that it will reproduce an entire plant)* tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for $3,652 ($432 filing fee and $3,220 examination fee), payable to "Treasurer of the United States" *(See Section 97.6 of the Regulations and Rules of Practice.)* Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfiled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of $432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office
Telephone: (301) 504-5518
FAX: (301) 504-5291
Homepage: http://www.ams.usda.gov/science/pvpo/pvpindex.htm

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that name has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, 10301 Baltimore Avenue, Suite 401 NAL Building, Beltsville, MD 20705. Telephone: (301) 504-5682 http://www.ams.usda.gov/lsg/seed.htm.

ITEM

19a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified

19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:

(1) identify these varieties and state all differences objectively;
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.

19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.

19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.

19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.

20. If "Yes" is specified (seed of this variety be sold by variety name only, as a class of certified seed), the applicant MAY NOT reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).

23. *See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.*

24. *See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.*

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22. CONTINUED FROM FRONT *(Please provide a statement as to the limitation and sequence of generations that may be certified.)*

Seed of Brantley peanut shall be limited to the Foundation, Registered, and Certified generations.

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23. CONTINUED FROM FRONT *(Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)*

Foundation seed of Brantley was first sold on March 31, 2005.

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24. CONTINUED FROM FRONT *(Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)*

The high-oleic seed oil trait is protected by US Patent Nos. 5,922,390 (issued July 13, 1999), 6,063,984 (issued May 16, 2000), and 6,121,472 (issued September 19, 2000)

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. *(See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)*

Exhibit A
Origin and Breeding History of the Variety

'Brantley', tested under the experimental designation N00090ol, was developed by backcrossing the high-oleic trait patented by the University of Florida (US Patent Nos. 5,922,390, 6,063,984, and 6,121,472) (Knauft *et al.*, 1993; Moore and Knauft, 1989; Norden *et al.*, 1987) into the 'NC 7' cultivar (Wynne *et al.*, 1979). The initial cross, X90046, was made in 1990 using NC 7 as a female and F435-2-3-B-2-1-b4-B-B-3-b3-b3-1-B, a spanish-type line that was identified with the high-oleic trait (Norden *et al.*, 1987), as a male. The F_1 generation was grown in a winter nursery in Puerto Rico in the winter of 1990-1991, the F_2 generation was subjected to single-seed descent in the field in North Carolina in 1992, and the F_3 to single-seed descent in the winter nursery in the winter of 1992-1993. Individual F_4 plants were harvested in the field in North Carolina in 1993, and the $F_{4:5}$ progeny were analyzed for fatty acid profiles using gas chromatography of fatty acid methyl esters. In the summer of 1994, remnant seed of X90046 (F2-S-S-08: F05), a family with high oleic acid content, was crossed as a male to NC 7 as a female to make the first backcross, X94064. The BC_1F_1 plants were grown in the greenhouse in the winter of 1994-1995, and individual BC_1F_2 seeds were analyzed for fatty acid profile using the protocol of Zeile *et al.* (1993) by the USDA-ARS Soybean and Biological Nitrogen Fixation research unit at Raleigh, NC. In the summer of 1995, a high-oleic BC_1F_2 seed [X94064 (BC1F2-04: F02)] was grown in the greenhouse at NCSU to be used as a female with NC 7 as a male in the second backcross, X95006. The BC_2F_1 plants were grown in the greenhouse in the winter of 1995-1996, and individual BC_2F_2 seeds were analyzed for fatty acid profile. In the summer of 1996, a high-oleic BC_2F_2 seed [X95006 (BC2F1-02-02: F02)] was grown in the greenhouse at NCSU to be used as a female with NC 7 as a male in the third backcross, X96156. A heterozygous BC_3F_1 plant [X96156 (BC3F1-01: F01)] was grown in the greenhouse in the winter of 1996-1997 and crossed as a female to NC 7 in the fourth backcross, X97001. Individual BC_4F_1 seeds were analyzed for fatty acid profile, the heterozygotes carrying the partially recessive high-oleic gene identified, and those seeds planted in the greenhouse in the summer of 1997. Individual BC_4F_2 seeds were analyzed for fatty acid profile, and the high-oleic seeds were grown in the winter nursery in the winter of 1998-1999.

$BC_4F_{2:3}$ families were grown in a replicated yield test (the High-Oleic Preliminary Yield Test) at the Peanut Belt Research Station at Lewiston, NC in 1999. Breeding line N00090ol was numbered in 2000 upon entry into the NCSU Advanced Yield Test. Brantley was entered in the NCSU Advanced Yield Test (two-rep tests conducted at three sites annually) from 2000 through 2003, and the VPI-NCSU Peanut Variety and Quality Evaluation Program (conducted at four sites annually with separate two-rep tests dug early and late at each site) in 2002 and 2003, and the Uniform Peanut Performance Test (conducted at nine sites across seven states) in 2003.

Brantley was developed by employees of NCSU (breeder Thomas G. Isleib; agricultural research specialists Philip W. Rice and Susan C. Copeland, research technicians Roy W. Mozingo II and John B. Graeber) and by employees of USDA-ARS (chemist William P. Novitzky, research chemist Harold E. Pattee, supervisory plant physiologist Timothy H. Sanders).

Statement of Uniformity and Stability

Brantley was observed over five (5) generations and was found to be uniform and stable. No variants were observed.

References

Knauft, D.A., K.M. Moore, and D.W. Gorbet. 1993. Further studies on the inheritance of fatty acid composition in peanut. Peanut Sci. 20: 74-76.

Moore, K.M., and D.A. Knauft. 1989. The inheritance of high oleic acid in peanut. J. Hered. 80: 252-253.

Norden, A.J., D.W. Gorbet, D.A. Knauft, and C.T. Young. 1987. Variability in oil quality among peanut genotypes in the Florida breeding program. Peanut Sci. 14: 7-11.

Zeile, W.L., D.A. Knauft, and C.B. Kelly. 1993. A rapid non-destructive technique for fatty acid determination in individual peanut seed. Peanut Sci. 20: 9-11.

Wynne, J.C., R.W. Mozingo, and D.A. Emery. 1979. Registration of NC 7 peanut (Reg. No. 22). Crop Sci. 19: 563.

Exhibit B
Statement of Distinctness

Brantley is most similar to NC 7, the cultivar used as a recurrent parent in the development of Brantley. The characters that clearly distinguish Brantley from NC 7 are fatty acid composition. In relation to NC 7, Brantley has elevated average oleic (18:1) acid content (79.2 vs. 58.0% of total fatty acids, $P<0.0001$) and eicosenoic (20:1) acid content (1.4 vs. 1.1% of total fatty acids, $P<0.0001$) and reduced average palmitic (16:0) acid content (5.7 vs. 8.7% of total fatty acids, $P<0.0001$) and linoleic (18:2) acid content (3.5 vs. 22.4% of total fatty acids, $P<0.0001$). These differences contributed to differences in total saturated fatty acids (16.0 vs. 18.5, $P<0.0001$), iodine value (75.2 vs. 90.0%, $P<0.0001$), oleic-to-linoleic acid ratio (26.2 vs. 2.7, $P<0.0001$), and ratio of polyunsaturated to saturated fatty acids (0.22 vs. 1.23, $P<0.0001$). These differences were consistently significant across the ten tests in which fatty acid profiles were evaluated from 2002-2004 (see table below).

Comparison of fatty acid profiles in sound mature kernels sampled from Brantley and NC 7 peanut cultivars. Data from the 2002-2004 Peanut Variety and Quality Evaluation program[§].

Year	Location[†]	Dig	Palmitic acid (16:0)							Oleic acid (18:1)							Linoleic acid (18:2)						
			Brantley	NC 7	Difference	SE of difference	Error df	t statistic	P>|t|	Brantley	NC 7	Difference	SE of difference	Error df	t statistic	P>|t|	Brantley	NC 7	Difference	SE of difference	Error df	t statistic	P>|t|
			%							%							%						
2002	Northampton Co., NC	Early	6.49	9.34	-2.85	0.4019	48	-7.091	0.0000	76.87	55.99	20.88	1.3409	48	15.572	0.0000	5.70	23.99	-18.29	1.1842	48	-15.446	0.0000
2002	Southampton Co., VA	Early	6.08	8.94	-2.86	0.2314	48	-12.360	0.0000	78.04	55.68	22.36	1.0157	48	22.014	0.0000	4.83	25.73	-20.90	0.9686	48	-21.577	0.0000
2002	Suffolk, VA	Early	5.89	8.70	-2.81	0.1488	48	-18.883	0.0000	79.01	56.24	22.77	0.9437	48	24.129	0.0000	3.76	24.15	-20.39	1.1264	48	-18.103	0.0000
2003	Martin Co., VA	Early	5.55	8.22	-2.67	0.1438	44	-18.571	0.0000	80.57	59.08	21.49	0.9447	44	22.748	0.0000	2.81	22.73	-19.92	0.8326	44	-23.924	0.0000
2003	Northampton Co., NC	Early	5.81	8.89	-3.08	0.2036	44	-15.125	0.0000	79.66	55.87	23.79	0.9061	44	26.255	0.0000	3.77	25.78	-22.01	0.6662	44	-33.036	0.0000
2003	Southampton Co., VA	Early	5.72	8.89	-3.17	0.1755	44	-18.067	0.0000	80.08	54.92	25.16	0.9132	44	27.550	0.0000	3.48	26.22	-22.74	0.7998	44	-28.431	0.0000
2003	Suffolk, VA	Early	5.71	8.86	-3.15	0.1880	44	-16.752	0.0000	79.37	55.40	23.97	0.8055	44	29.758	0.0000	3.81	25.65	-21.84	0.7328	44	-29.804	0.0000
2004	Columbus Co., NC	Early	5.57	8.79	-3.22	0.1728	48	-18.636	0.0000	78.70	61.80	16.90	1.3345	48	12.664	0.0000	2.33	16.30	-13.97	1.0806	48	-12.928	0.0000
2004	Southampton Co., VA	Early	5.16	8.09	-2.93	0.2255	48	-12.992	0.0000	79.40	63.40	16.00	2.3199	48	6.897	0.0000	2.03	15.20	-13.17	2.8779	48	-4.576	0.0000
2004	Suffolk, VA	Early	5.01	8.17	-3.16	0.1841	48	-17.162	0.0000	80.10	61.30	18.80	0.9416	48	19.966	0.0000	2.06	18.30	-16.24	0.9908	48	-16.391	0.0000
n			10	10	10					10	10	10					10	10	10				
Minimum			5.01	8.09	-3.22					76.87	54.92	16					2.03	15.2	-22.74				
Maximum			6.49	9.34	-2.67					80.57	63.40	25.16					5.70	26.22	-13.17				
Mean			5.699	8.689	-2.99					79.18	57.968	21.212					3.458	22.405	-18.947				
Standard error			0.1343	0.1272	0.0599					0.346	0.9941	0.9738					0.3787	1.3301	1.0795				
t statistic for H0: Mean=0			42.422	68.331	-49.926					228.590	58.309	21.782					9.131	16.845	-17.551				
P>|t|			0.0000	0.0000	0.0000					0.0000	0.0000	0.0000					0.0000	0.0000	0.0000				

[§] Mozingo, R.W. 2003. Peanut Variety and Quality Evaluation results, 2002. II. Quality data. Virginia Agric. Exp. Sta. Information Series No. 461.
Mozingo, R.W. 2004. Peanut Variety and Quality Evaluation results, 2003. II. Quality data. Virginia Agric. Exp. Sta. Information Series No. 472.
Coker, D.L., and R.W. Mozingo. 2005. Peanut Variety and Quality Evaluation results, 2004. II. Quality data. Virginia Agric. Exp. Sta. Information Series No. 477.

[†] Locations used in the Peanut Variety and Quality Evaluation program include the Taylor Slade farm in Martin Co. near Hamilton, NC, the Billy Fisher farm in Northampton Co. near Conway, NC, the NCDA Border Belt Tobacco Research Station in Columbus Co. near Whiteville, NC, the Jack Pond farm in Southampton Co. near Sedley, VA, and the Tidewater Agricultural Research and Extension Center at Suffolk, VA. All seed samples were harvested from the early digging at each location in each year (137 to 147 days after planting). All tests were conducted as randomized complete block experiments with 2 replications with two-row plots 40 ft in length.

Comparison of fatty acid profiles in sound mature kernels sampled from Brantley and NC 7 peanut cultivars (cont'd).

Year	Location	Dig	Eicosenoic acid (20:1)							Iodine value							Oleic-to-linoleic ratio						
			Brantley	NC 7	Difference	SE of difference	Error df	t statistic	P>|t|	Brantley	NC 7	Difference	SE of difference	Error df	t statistic	P>|t|	Brantley	NC 7	Difference	SE of difference	Error df	t statistic	P>|t|
			%							%													
2002	Northampton Co., NC	Early	1.36	1.03	0.33	0.1428	48	2.311	0.0252	77.04	90.51	-13.47	1.0089	48	-13.351	0.0000	13.50	2.34	11.16	1.0108	48	11.041	0.0000
2002	Southampton Co., VA	Early	1.37	0.97	0.40	0.0689	48	5.803	0.0000	76.56	93.22	-16.66	1.0295	48	-16.183	0.0000	16.57	2.18	14.39	1.0662	48	13.496	0.0000
2002	Suffolk, VA	Early	1.23	0.99	0.24	0.0619	48	3.878	0.0003	75.43	90.98	-15.55	1.2884	48	-12.069	0.0000	21.80	2.33	19.47	1.3536	48	14.384	0.0000
2003	Martin Co., VA	Early	1.65	1.20	0.45	0.1214	44	3.708	0.0006	75.46	91.13	-15.67	0.6582	44	-23.807	0.0000	29.24	2.60	26.64	1.2425	44	21.441	0.0000
2003	Northampton Co., NC	Early	1.81	1.23	0.58	0.1511	44	3.840	0.0004	76.46	93.68	-17.22	0.4759	44	-36.188	0.0000	21.13	2.17	18.96	0.9690	44	19.567	0.0000
2003	Southampton Co., VA	Early	1.53	1.27	0.26	0.1008	44	2.579	0.0133	76.11	93.66	-17.55	0.6658	44	-26.360	0.0000	23.38	2.10	21.28	0.7873	44	27.028	0.0000
2003	Suffolk, VA	Early	1.63	1.16	0.47	0.1514	44	3.104	0.0033	76.14	92.98	-16.84	0.7573	44	-22.237	0.0000	21.02	2.16	18.86	0.5664	44	33.298	0.0000
2004	Columbus Co., NC	Early	1.11	0.90	0.21	0.0581	48	3.612	0.0007	72.61	82.29	-9.68	0.8427	48	-11.487	0.0000	34.70	3.80	30.90	1.8070	48	17.101	0.0000
2004	Southampton Co., VA	Early	1.13	0.83	0.30	0.0737	48	4.071	0.0002	72.75	81.69	-8.94	3.0503	48	-2.931	0.0052	42.10	4.16	37.94	3.2705	48	11.601	0.0000
2004	Suffolk, VA	Early	1.19	0.99	0.20	0.0537	48	3.726	0.0005	73.38	85.39	-12.01	1.3212	48	-9.090	0.0000	39.00	3.36	35.64	0.7953	48	44.813	0.0000
n			10	10	10					10	10	10					10	10	10				
Minimum			1.11	0.83	0.2					72.61	81.69	-17.55					13.5	2.1	11.16				
Maximum			1.81	1.27	0.58					77.04	93.68	-8.94					42.1	4.16	37.94				
Mean			1.401	1.057	0.344					75.194	89.553	-14.359					26.244	2.72	23.524				
Standard error			0.0769	0.0471	0.0401					0.524	1.4774	1.0029					3.0405	0.2416	2.8266				
t statistic for H0: Mean=0			18.207	22.433	8.581					143.599	60.616	-14.318					8.632	11.259	8.322				
P>|t|			0.0000	0.0000	0.0000					0.0000	0.0000	0.0000					0.0000	0.0000	0.0000				

Comparison of fatty acid profiles in sound mature kernels sampled from Brantley and NC 7 peanut cultivars (cont'd).

			Total saturated fatty acids							Polyunsaturated-to-saturated ratio						
Year	Location	Dig	Brant-ley	NC 7	Diff-erence	SE of difference	Error df	t stat-istic	P>|t|	Brant-ley	NC 7	Diff-erence	SE of difference	Error df	t stat-istic	P>|t|
			%													
2002	Northampton Co., NC	Early	16.08	19	-2.92	0.2558	48	-11.416	0.0000	0.35	1.26	-0.91	0.0625	48	-14.558	0.0000
2002	Southampton Co., VA	Early	15.76	17.62	-1.86	0.4415	48	-4.213	0.0001	0.31	1.46	-1.15	0.0706	48	-16.298	0.0000
2002	Suffolk, VA	Early	16.01	18.61	-2.6	0.4933	48	-5.271	0.0000	0.23	1.3	-1.07	0.0858	48	-12.477	0.0000
2003	Martin Co., VA	Early	14.97	16.99	-2.02	0.2030	44	-9.949	0.0000	0.19	1.34	-1.15	0.0426	44	-27.021	0.0000
2003	Northampton Co., NC	Early	14.77	17.11	-2.34	0.2950	44	-7.934	0.0000	0.26	1.51	-1.25	0.0332	44	-37.673	0.0000
2003	Southampton Co., VA	Early	14.91	17.58	-2.67	0.1899	44	-14.063	0.0000	0.23	1.49	-1.26	0.0411	44	-30.672	0.0000
2003	Suffolk, VA	Early	15.19	17.79	-2.6	0.4246	44	-6.124	0.0000	0.25	1.44	-1.19	0.0578	44	-20.602	0.0000
2004	Columbus Co., NC	Early	17.84	20.85	-3.01	0.3836	48	-7.847	0.0000	0.13	0.79	-0.66	0.0484	48	-13.636	0.0000
2004	Southampton Co., VA	Early	17.37	20.42	-3.05	0.7505	48	-4.064	0.0002	0.12	0.75	-0.63	0.1902	48	-3.312	0.0018
2004	Suffolk, VA	Early	16.66	19.28	-2.62	0.7352	48	-3.564	0.0008	0.12	0.95	-0.83	0.0777	48	-10.682	0.0000
n			10	10	10					10	10	10				
Minimum			14.77	16.99	-3.05					0.12	0.75	-1.26				
Maximum			17.84	20.85	-1.86					0.35	1.51	-0.63				
Mean			15.956	18.525	-2.569					0.219	1.229	-1.01				
Standard error			0.336	0.427	0.1256					0.0251	0.0921	0.0749				
t statistic for H_0: Mean=0			47.488	43.383	-20.450					8.726	13.345	-13.489				
P>|t|			0.0000	0.0000	0.0000					0.0000	0.0000	0.0000				

REPRODUCE LOCALLY. Include form number and date on all reproductions. Form Approved OMB NO 0581-0055

U.S. DEPARTMENT OF AGRICULTURE Exhibit C
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

OBJECTIVE DESCRIPTION OF VARIETY
Peanut (*Arachis hypogaea*)

NAME OF APPLICANT (S)	TEMPORARY OR EXPERIMENTAL DESIGNATION	VARIETY NAME
North Carolina State University U.S. Government as represented by the Secretary of Agriculture	N00090o1	Brantley

ADDRESS *(Street and No. or RD No., City, State, Zip Code, and Country)*

North Carolina Agricultural Research Service
Campus Box 7643
North Carolina State University
Raleigh, NC 27695-7643

FOR OFFICIAL USE ONLY

PVPO NUMBER 200600071

PLEASE READ ALL INSTRUCTIONS CAREFULLY:

Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box e.g., [0][8][9] or [0][9]) when a number is either 99 or less or 9 or less.

1. BOTANICAL TYPE:

[1] Flowering on the Main Stem: 1 = Absent 2 = Present

[1] Branching Pattern: 1 = Alternate – Pairs of vegetative and reproductive branches (Virginia)
2 = Sequential – Continuous reproductive branches (Valencia-Spanish) _____
3 = Other (Specify) _____

2. PLANT:

[2] Habit: 1 = Prostrate (Florunner) 2 = Decumbent (NC–5) 2 = Semi-Erect (Florispan) 4 = Erect (Starr)

[3] Branching: 1 = Sparse (Valencia) 2 = Moderate (Starr) 3 = Profuse (Florunner)

3. MATURITY:

[1] Region: 1 = Virginia, North Carolina 2 = Southeast United States 3 = Southwest United States 4 = Other

[1][4][5] Number of Days to Maturity

[0][0] Number of Days Earlier Than [8]

[ ][ ] Number of Days Later Than [ ]

1 = Starr 2 = Florunner 3 = Florigiant
4 = Virginia 61R 5 = NC-2
6 = NC-5 7 = Southeastern Runner 56-15
8 = Other (Specify) NC 7

4. LEAVES:

[2] Color at 60 Days (Nickerson Color Designation _____)

[5][3] mm Leaflet length (Basal Leaflet of the Youngest Fully Opened Leaf)

[2].[4] Leaflet Length/Width Ratio

1=Light Green (10gy 6/9)
2= Medium Green (2.5G 5/9)
3=Dark green (5G 4/7)
4= Other (Specify)

5. POD (Average for 20 pods at maturity):

[3][6] mm Length [1][5] mm Diameter

[4][4][7][8] KG./HA. Pod Yield

[0] % Less Than [8] 1 = Starr 2 = Florunner 3 = Florigiant
[ ] % More Than [ ] 4 = Virginia 61R 5 = NC-2
6 = NC-5 7 = Southeastern Runner 56-15
8 = Other (Specify) NC 7

[8][5] % Fancy Size: (% riding 13.46 mm., 34/64 Inch, Spacing Set on Presizer Roller

[2] Number of Seeds per Pod: 1 = 1 2 = 2 3 =3 4 =3-4 5 = 2-3-4

[2] Constriction: 1 = Shallow or None (Virginia 56R, Argentine) 2 = Medium (Virginia 61R) 3 = Deep (Starr)

[1] Surface: 1 = Glabrous (Florunner) 2 = Pubescent (Florispan)

[2] Beak: 1 = Absent 2 = Inconspicuous 3 = Pronounced

6. SEED (Mature, cured but not aged):

[0][3] Coat Color: 1 = White (Pearl) 2 = Cream 3 = Tan (Starr) 4 = Brown 5 = Pink (Florigiant) 6 = Red 7 = Purple 8 = Dark Purple 9 = Variegated 10 = Other (Specify) _____

[1] Coat Surface: 1 = Smooth 2 = Undented [1] 1 = Uniform Color 2 = Blemished

[5] Shape: 1 = Spheroidal (Starr) 2 = Short Broad (Florunner) 3 = Elongated-Slender (Dixie Runner) 4 = Cylindrical-tapered Ends 5 = Cylindrical Blunt Ends (NC-2) 6 = Other (Specify) _____

[1][7] mm Length [1][1] mm Width [9][1] Grams per 100 Seeds (8% Moisture)

7. DISEASE RESISTANCE: (0 = Not Tested, 1 = Susceptible, 2 = Moderately Susceptible, 3 = Moderately Resistant, 4 = Resistant)

[0]	Southern Stem Rot	[0]	Rust	[1]	Early Leaf Spot	[0]	Virus X
[0]	Southern Leaf Spot	[0]	Mosaic	[0]	Pod Rot Complex	[1]	Other (Specify) CBR, Sclerotinia blight, TSWV

8. INSECT RESISTANCE: (0 = Not Tested, 1 = Susceptible, 2 = Moderately Susceptible, 3 = Moderately Resistant, 4 = Resistant)

[1]	Thrips	[0]	Burrowing Bug	[0]	Leaf Hopper	[0]	Nematode (Specify species) _____
[1]	Southern Corn Rootworm	[0]	Lesser Cornstalk Borer	[0]	Aphid	[ ]	Other (Specify) _____

9. COMPARISON OF SUBMITTED VARIETY WITH ONE OR MORE SIMILAR VARIETIES:

VARIETY	OIL* (% at 0% moisture)	PROTEIN* (%)	OLEIC: * LINOLEIC ACID RATIO	IODINE* NUMBER	SHELLING (%)	SMK** (%)	ELK+ (%)	MAIN STEM HEIGHT (CM)
Submitted	51.6	--	26.2	75.2	71.9	69.6	46.8	33.8
Similar	51.4	--	2.7	90.0	71.7	69.4	44.4	32.1
Name of Similar Variety	NC 7	--	NC 7	NC 7	NC 7	NC 7	NC 7	NC 7

* From Sound Mature Kernels ** Sound Mature Kernels + Extra Large Kernels

10. INDICATE A VARIETY WHICH MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	VARIETY	CHARACTER	VARIETY
Pod Color	NC 7	Hull Thickness	NC 7
Seedling Vigor	NC 7	Seed Size	NC 7
Seed Dormancy	NC 7	Leaf Color	NC 7

11. COMMENTS: (Additional description or clarification – such as: relative disease reactions may be compared with standard varieties)

VARIETY	STEARIC ACID (%)	ARACHIDIC ACID (%)	BEHENIC ACID (%)	LIGNOCERIC ACID (%)
Submitted	4.7	1.9	2.6	1.1
Similar	4.2	1.8	2.7	1.1
Name of Similar Variety	NC 7	NC 7	NC 7	NC 7

Exhibit D
Optional Supporting Information

Brantley is a large-seeded virginia-type peanut (*Arachis* hypogaea L.) line with high oleic acid content in its seed oil, essentially derived from the 'NC 7' cultivar (5). It has alternate branching pattern, intermediate runner growth habit, medium green foliage, large seeds with tan testa averaging 895 mg seed^{-1}, approximately 65% jumbo pods and 24% fancy pods, and extra large kernel content of approximately 50%.

Agronomic performance and grade. Because it was essentially derived from NC 7 by backcrossing, most characteristics of Brantley are comparable with those of NC 7. Yield of Brantley is comparable to that of existing cultivars. In the NCSU Advanced Yield Tests averaged across four years (Table 1), Brantley was not significantly different from NC 7 for any trait except for having a higher content of extra large kernels (47 vs. 43%, $P<0.05$). In the PVQE trials in 2002 and 2003 (Table 2), Brantley had more jumbo pods than NC 7 (67 vs. 59%, $P<0.05$), brighter jumbo pods (44.9 vs. 43.5 Hunter L score, $P<0.05$), fewer fancy pods (23 vs. 28%, $P<0.05$), greater average pod brightness (44.2 vs. 43.0 Hunter L score, $P<0.05$), more extra large kernels (52 vs. 48%, $P<0.05$), and fewer sound splits (1.6 vs. 2.3%, $P<0.05$). Brantley was not significantly different from NC 7 in yield or value per acre. The difference between the results obtained by the NCSU breeding project and the PVQE program may reflect the use of irrigation at all NCDA research stations used as test locations by the NCSU project, the sparse seeding rate used in the NCSU trials, or the differential occurrence or severity of diseases at some test sites.

Disease reactions. Brantley was not developed specifically to carry any particular disease resistance. Because it was essentially derived from NC 7 by backcrossing, it has more or less the same susceptibilities to disease as NC 7. Testing of Brantley's reactions to diseases prevalent in the Virginia-Carolina production area began in 2001.

Resistance to early leafspot. Brantley's reaction to early leafspot was evaluated from 2001 through 2003 in three field trials at the Peanut Belt Research Station with no application of leafspot fungicide during the entire season (Table 3). Defoliation was rated on a proportional scale of 1 (no defoliation) to 9 (complete defoliation) in late September or early October each year. Yield was measured on the unsprayed plots. Brantley was not significantly different in defoliation or yield from NC 7. Brantley should be considered susceptible to early leafspot.

Resistance to Cylindrocladium black rot and Sclerotinia blight. Although Brantley was entered in disease trials on infested soil from 2001 through 2003, the trials were so affected by tomato spotted wilt virus in 2001 and 2002 that useful data was acquired in only one test for either soil-borne disease. Reactions to both diseases are expressed as the proportion of plants exhibiting symptoms in plots grown on infested soil (Table 3). CBR and Sclerotinia incidence in Brantley was not significantly different from that in NC 7. Brantley should be considered susceptible to both of these soil-borne diseases.

Field resistance to tomato spotted wilt virus. Brantley's reaction to tomato spotted wilt virus was evaluated from 2001 through 2003 in field trials at the Peanut Belt Research Station in plots planted at 50 cm seed spacing (Table 3). The thin seeding rate and withholding of insecticide from the plots promoted feeding by thrips, the vector of TSWV. Disease reaction to TSWV was

measured as the proportion of plants exhibiting foliar symptoms at any time during the season. TSWV incidence in Brantley was not significantly different from that in NC 7. Brantley should be considered susceptible to TSWV.

Blanching characteristics. Blanching of extra large kernels of Brantley grown in the PVQE trials in 2002 and 2003 was similar to that of NC 7 in all respects except that Brantley had greater average moisture content after roasting (4.46 vs. 4.10%, $P<0.05$). The behavior of medium kernels of Brantley under blanching was even more similar to that of NC 7: there were no significant differences between the two for any characteristic measured.

Flavor characteristics. Flavor of Brantley was evaluated by a trained sensory panel in the Department of Food Science at N.C. State University under the direction of Dr. Harold Pattee, USDA-ARS Market Quality and Handling Research Unit. Samples of sound mature kernels from three locations from the 2001 growing season were submitted for evaluation along with samples of check cultivars. The roasted peanut, sweet, bitter, and astringent attributes of flavor in Brantley were not significantly different from those in NC 7, the flavor standard for the virginia market-type (Table 6). Brantley had lower intensity of the roasted peanut attribute (3.35 vs. 4.19, $P<0.05$) compared with Gregory.

Flavor was also evaluated as part of the cooperative Uniform Peanut Performance Test conducted at nine locations in 2003. Sensory analysis was performed on an ELK sample from each location by a sensory panel conducted by Timothy H. Sanders and Keith Hendrix of the USDA-ARS Market Quality and Handling Research Unit. Again, flavor of Brantley did not differ from that of NC 7 for any sensory attribute measured, although it was lower in the intensity of the sweet attribute (2.01 vs. 2.29 flavor intensity units [fiu], $P<0.05$) and roasted peanut attribute (4.38 vs. 4.78 fiu, $P<0.05$) and higher in bitter (3.10 vs. 2.91 fiu, $P<0.05$) compared with the runner-type flavor standard, Florunner.

Oil chemistry and calcium content. Brantley has high-oleic oil chemistry. The high-oleic trait produces an array of changes in the fatty acid composition of peanut oil compared with normal-oleic NC 7, most notably the elevation of oleic acid content (79.1 vs. 55.9%, $P<0.05$), and the reduction of linoleic acid content (4.3 vs. 25.1%, $P<0.05$) and palmitic acid content (5.7 vs. 8.8%, $P<0.05$). These changes resulted in differences between Brantley and NC 7 in iodine value (76.7 vs. 92.4, $P<0.05$), oleic-to-linoleic acid ratio (21.8 vs. 2.3, $P<0.05$), total saturated fatty acids (15.2 vs. 18.0%, $P<0.05$), and the ratio of polyunsaturated to saturated fatty acids (0.29 vs. 1.40, $P<0.05$). There were small but statistically significant changes in stearic acid, arachidic acid, eicosenoic acid, and behenic acid as well. Compared with NC 7, Brantley should exhibit extended shelf life that has been documented in high-oleic lines.

Brantley was developed by employees of NCSU (breeder Thomas G. Isleib; agricultural research specialists Philip W. Rice and Susan C. Copeland, research technicians Roy W. Mozingo II and John B. Graeber) and by employees of USDA-ARS (chemist William P. Novitzky, research chemist Harold E. Pattee, supervisory plant physiologist Timothy H. Sanders).

References

Wynne, J.C., R.W. Mozingo, and D.A. Emery. 1979. Registration of NC 7 peanut (Reg. No. 22). Crop Sci. 19: 563.

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Table 1. Mean performance in 2000-2003 NCSU Advanced Yield Test conducted at three locations (Peanut Belt Research Station at Lewiston, Upper Coastal Plains Research Station at Rocky Mount, and Border Belt Tobacco Research Station at Whiteville) over four years.

Entry	Foreign material	Loose shelled kernels	Weight of 100 pods	Farmer stock fancy pods		Jumbo pods				Fancy pods				Jumbo-to-fancy ratio	Weight of 100 seeds	Extra large kernels	Sound mature kernels	Sound splits	Other kernels	Meat content	Support price	Pod yield	Crop value	Value rank
				Content	Brightness	Content	Brightness	Redness	Yellowness	Content	Brightness	Redness	Yellowness											
	%	%	g	%	*Hunter L*	%	*Hunter L*	*Hunter a*	*Hunter b*	%	*Hunter L*	*Hunter a*	*Hunter b*		g	%	%	%	%	%	¢/lb	lb/A	$/A	
N97138C	1.3	0.7^{az}	255	78.4	46.2^{a}	36.0	45.9	3.6^{a}	14.9	42.3	46.2^{a}	3.6^{a}	15.1^{a}	0.85	82.6	32.6	70.7^{a}	4.5^{a}	2.2	73.6^{a}	18.32^{a}	3814^{a}	696^{a}	5
N98002	1.1	1.0^{a}	245	81.3	47.0^{a}	33.9	45.6	3.4	15.0	47.0^{a}	47.3^{a}	3.4^{a}	15.5^{a}	0.72	81.9	42.9	70.0^{a}	3.4	1.9	72.5^{a}	18.30^{a}	3697^{az}	672	7
N98003	1.0	0.6^{z}	244	78.5	46.9^{a}	33.1	44.5	3.2^{z}	14.4	44.9^{a}	47.6^{a}	3.5^{a}	15.5^{a}	0.74	79.7	40.5	70.2^{a}	3.5	1.9	72.9^{a}	18.32^{a}	3662^{z}	668	10
N99103ol	1.0	0.7^{z}	239	76.4	46.8^{a}	29.0	44.0	3.3	14.2	47.4^{a}	47.5^{a}	3.6^{a}	15.4^{a}	0.61	76.5	31.4	69.3	5.1^{a}	2.3	72.4^{a}	17.95	3468^{z}	622^{z}	17
N99109ol	1.7^{a}	0.6^{z}	205^{z}	55.5^{z}	45.0	15.5^{z}	39.1^{z}	3.1^{z}	12.7^{z}	39.6	46.4^{a}	3.3	15.2^{a}	0.39	68.0^{z}	19.4^{z}	69.0	4.6^{a}	2.6^{a}	72.4^{a}	17.65	3794^{a}	668	11
N99129CSm	1.2	0.7^{az}	262	78.1	46.0	41.9	45.9	3.6^{a}	15.4^{a}	35.9	45.6	3.6^{a}	15.3^{a}	1.16	83.3	42.2	69.2	4.1	2.1	72.1	18.11	3732^{a}	677^{a}	6
N00033	0.8^{z}	0.4^{z}	268^{a}	90.2^{a}	46.7^{a}	60.4	47.6^{a}	3.5	15.7^{a}	29.9	43.8	3.3	14.3	2.02	90.5^{a}	47.2^{a}	71.2^{a}	3.3	1.5^{z}	73.4^{a}	18.64^{a}	3795^{a}	707^{a}	3
N00062	1.0	1.1^{a}	266	81.9	46.3^{a}	42.8	46.8^{a}	3.6^{a}	15.5^{a}	39.2	45.5	3.7^{a}	14.9	1.09	84.5	40.3	70.3^{a}	3.3	2.0	73.0^{a}	18.34^{a}	3669^{z}	669	8
N00064	0.9^{z}	0.6^{z}	279^{a}	92.3^{a}	46.4^{a}	74.7^{a}	47.7^{a}	3.6^{a}	16.0^{a}	18.0^{z}	38.3^{z}	3.1^{z}	12.5^{z}	4.15	90.2^{a}	43.9	68.1	2.2^{z}	1.7^{z}	70.0^{z}	17.83	3972^{a}	706^{a}	4
Brantley	**1.3**	**0.9^{a}**	**278^{a}**	**86.3**	**45.5**	**59.8**	**46.6^{a}**	**3.5^{a}**	**15.5^{a}**	**26.9**	**42.3**	**3.4**	**13.9**	**2.22**	**89.5^{a}**	**46.8^{a}**	**70.2^{a}**	**2.8^{z}**	**1.5^{z}**	**72.2^{a}**	**18.40^{a}**	**3655^{z}**	**669**	**9**
N00098ol	0.8^{z}	0.8^{az}	280^{a}	86.3	46.3^{a}	55.3	46.5^{a}	3.5^{a}	15.3	31.4	45.1	3.4	14.6	1.76	90.0^{a}	38.7	69.1	4.7^{a}	1.8^{z}	71.8	18.01	3647^{z}	657	12
Florigiant	0.9^{z}	0.4^{z}	250	84.8	46.3^{a}	43.4	46.3^{a}	3.3	15.0	41.7	46.2^{a}	3.3	14.8	1.04	80.2	26.4	66.2^{z}	2.7^{z}	2.6^{a}	69.2^{z}	17.12^{z}	3309^{z}	563^{z}	21
NC 7	**1.0**	**0.9^{a}**	**273^{a}**	**86.1**	**44.6^{z}**	**57.4**	**45.7**	**3.7^{a}**	**15.0**	**28.7**	**42.4**	**3.5^{a}**	**13.8**	**2.00**	**87.5^{a}**	**43.4**	**69.5**	**3.3**	**1.7^{z}**	**71.9**	**18.18**	**3520^{z}**	**634^{z}**	**15**
NC 9	1.1	0.4^{z}	245	84.6	46.1	45.2	46.4^{a}	3.3^{z}	15.0	39.5	45.7	3.3	14.7	1.14	80.4	26.9	68.1	3.9	2.5^{a}	70.9	17.60	3606^{z}	632^{z}	16
NC 10C	1.1	0.4^{z}	232	79.7	46.7^{a}	36.4	45.4	3.5^{a}	14.9	42.7	47.0^{a}	3.4	15.5^{a}	0.85	73.2	16.7^{z}	65.8^{z}	3.5	2.7^{a}	69.1^{z}	16.86^{z}	3458^{z}	580^{z}	19
NC-V 11	1.1	0.6^{z}	231	79.0	45.5	34.0	45.1	3.5	14.7	44.8^{a}	45.7	3.5^{a}	14.9	0.76	79.3	31.1	69.2	3.2	2.0	71.8	17.91	3642^{z}	651	14
NC 12C	1.1	1.1^{a}	254	83.3	45.8	50.3	46.9^{a}	3.6^{a}	15.4^{a}	33.2	44.0	3.5^{a}	14.3	1.52	82.1	43.0	69.9^{a}	3.4	1.7^{z}	72.2^{a}	18.28^{a}	3616^{z}	654	13
Gregory	0.9^{z}	0.8^{a}	280^{a}	88.0	45.1	64.3	46.3^{a}	3.5	15.4^{a}	23.7	41.2	3.3	13.4	2.71	90.3^{a}	46.2^{a}	70.8^{a}	2.9^{z}	1.6^{z}	72.9^{a}	18.54^{a}	4117^{a}	758^{a}	1
Perry	0.9^{z}	0.9^{a}	268^{a}	90.3^{a}	44.3^{z}	60.5	44.8	3.6^{a}	15.1	29.4	42.6	3.5^{a}	14.2	2.06	87.8^{a}	34.3	68.1	3.0	2.3^{a}	70.7	17.71	3276^{z}	575^{z}	20
VA-C 92R	0.6^{z}	0.6^{z}	243	75.9	44.0^{z}	31.6	43.1	3.6^{a}	14.3	44.1^{a}	44.4	3.7^{a}	14.6	0.72	84.6	34.1	70.2^{a}	3.1	2.1	72.9^{a}	18.23	3991^{a}	729^{a}	2
VA 98R	0.9^{z}	0.7^{az}	241	77.1	45.9	34.2	44.9	3.5	14.6	43.1	45.8	3.5^{a}	14.9	0.79	81.0	32.8	69.4	5.0^{a}	2.1	72.5^{a}	18.00	3394^{z}	609^{z}	18
Mean	1.0	0.7	254	81.6	45.9	44.7	45.5	3.5	15.0	36.8	44.8	3.4	14.6	1.40	83.0	36.2	69.3	3.6	2.0	71.9	18.01	3659	657	
CV (%)	43.4	66.5	5.7	5.1	2.2	14.6	4.8	7.9	5.5	13.5	4.1	8.1	4.6		5.4	10.2	2.7	26.3	23.6	2.5	2.8	15.1	16.0	
$LSD_{.05}$	0.4	0.4	12	3.4	0.8	5.3	1.8	0.2	0.7	4.0	1.5	0.2	0.5		3.6	3.0	1.5	0.8	0.4	1.5	0.40	443	84	

a,z Denote means not significantly different from the greatest and the least in the column, respectively, by protected t-test at the 5% level of probability.
ns Denotes traits for which the F-test of differences among entries was not significant at the 5% level of probability.

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Table 2. Mean performance in the 2002-2003 Peanut Variety and Quality Evaluation trials, four years at four locations with separate tests dug early and late at each site.

Identity	FM	LS	Farmer stock fancy pods Con-tent	Bright-ness	Jumbo pods Con-tent	Bright ness	Fancy pods Con-tent	Bright-ness	Jumbo-to-fancy ratio	ELK	SMK	SS	OK	DK	Meat content	Sup-port price	Pod yield	Crop Value	
	%	*%*	*%*	*Hunter L*	*%*	*Hunter L*	*%*	*Hunter L*		*%*	*%*	*%*	*%*	*%*	*%*	*¢/lb*	*lb/A*	*$/A*	*Rank*
N97138C	1.4	1.3	80.3	44.2	37.5	45.0	42.9	43.6	0.87	38.8	68.7[a]	2.2	2.5	1.6	75.0[a]	17.94[a]	4261	767	13
N98002	1.1[z]	1.2	81.2	46.0[a]	31.8	46.3[a]	49.8[a]	45.8[a]	0.64	46.9	67.6	2.0	2.1	1.2[z]	72.8	17.79[a]	4585[a]	820[a]	1
N98003	1.1	1.3	80.8	45.4	32.3	46.1[a]	48.6[a]	45.0	0.66	46.8	68.1[a]	2.1	1.8[z]	1.4[z]	73.3	17.91[a]	4496[a]	809[a]	2
N99103ol	1.1[z]	0.8[z]	74.8	46.1[a]	23.8	45.9[a]	51.3[a]	46.2[a]	0.46	37.4	66.7	2.8[a]	2.7	1.2[z]	73.4	17.44	4314	762	14
N99109ol	1.3	0.8[z]	51.6[z]	45.5	9.1[z]	41.7[z]	42.9	46.0[a]	0.21	22.3[z]	65.3	2.8[a]	3.9[a]	1.5	73.3	16.87[z]	3949[z]	674[z]	22
N99129CSm	1.6[a]	2.0	85.4	45.0	55.6	45.8[a]	30.0	43.8	1.85	50.2[a]	66.6	2.3	2.5	1.3[z]	72.7	17.64	4242	746	15
N00033	1.5	1.9	89.6	45.1	65.8	45.6[a]	24.1	43.6	2.73	51.5[a]	67.7[a]	1.8[z]	2.1	1.6	73.1	17.90[a]	4457[a]	794[a]	3
N00064	1.3	1.2	93.3[a]	44.9	79.1[a]	45.3	14.5[z]	42.0[z]	5.46	47.3	64.3[z]	1.4[z]	2.0	1.7[a]	69.4[z]	16.96	4536[a]	778	9
Brantley	**1.3**	**2.8**	**89.5**	**44.2**	**66.8**	**44.9**	**22.9**	**42.2[z]**	**2.91**	**52.4[a]**	**66.8**	**1.6[z]**	**1.5[z]**	**2.0[a]**	**71.9**	**17.64**	**4205**	**738**	**17**
N00098ol	1.2	1.8	88.8	44.0	59.6	44.4	29.6	43.3	2.01	43.9	65.3	2.3	2.1	2.0[a]	71.6	17.17	4483[a]	775	10
VT 9506102-6	1.2	1.6	81.7	46.6[a]	31.8	46.7[a]	50.2[a]	46.4[a]	0.63	38.1	68.0[a]	1.5[z]	2.6	1.1[z]	73.2	17.77[a]	4455[a]	791[a]	4
VT 974036	1.3	2.4	59.2	44.3	14.9	42.5[z]	44.6	44.5	0.33	34.9	65.3	3.0[a]	2.5	1.6[a]	72.4	17.04	4325	736	18
VT 976133	1.0[z]	1.9	81.5	44.4	37.6	45.0	44.1	43.9	0.85	42.6	67.3	1.8[z]	2.0	1.9[a]	73.0	17.63	4381	774	11
VT 992068-2	1.2	1.0[z]	89.1	43.5[z]	60.4	44.0	29.1	42.5[z]	2.07	38.5	63.3[z]	2.3	2.4	1.8[a]	69.8[z]	16.60[z]	4408	743	16
NC 7	**1.5**	**2.6**	**86.9**	**43.0[z]**	**59.0**	**43.5**	**28.0**	**41.8[z]**	**2.11**	**47.6**	**65.9**	**2.3**	**1.8[z]**	**2.1[a]**	**72.1**	**17.37**	**4084[z]**	**710[z]**	**20**
NC-V 11	1.4	1.1	71.8	44.7	22.6	44.6	49.3[a]	44.7	0.46	33.8	66.1	1.8[z]	2.9	1.3[z]	72.0	17.24	4492[a]	781[a]	7
NC 12C	1.8[a]	3.7[a]	83.9	43.7	52.5	44.3	31.6	42.7	1.66	48.0	66.9	2.2	1.8[z]	2.1[a]	72.8	17.61	3991[z]	691[z]	21
Gregory	1.6	2.2	89.3	44.0	67.6	44.6	21.9	42.1[z]	3.08	49.0	66.1	1.6[z]	1.9	2.0[a]	71.3	17.43	4474[a]	779	8
Perry	1.7[a]	1.2	74.1	44.6	25.3	44.5	49.1[a]	44.6	0.51	39.1	67.2	2.2	2.8	1.0[z]	73.1	17.60	4064[z]	719	19
VA-C 92R	0.8[z]	1.3	78.9	43.2[z]	34.9	43.4	44.4	42.9	0.79	39.4	66.4	1.5[z]	2.3	1.7[a]	71.9	17.38	4425[a]	773	12
VA 98R	1.2	0.9[z]	71.5	45.2	21.5	45.0	50.1[a]	45.3	0.43	36.1	67.0	2.3	2.7	1.3[z]	73.2	17.50	4472[a]	788[a]	5
Wilson	1.0[z]	0.7[z]	78.3	46.1[a]	28.6	46.2[a]	49.9[a]	46.1[a]	0.57	33.4	64.3[z]	1.8[z]	2.6	0.9[z]	69.5[z]	16.76[z]	4621[a]	782[a]	6
Mean	1.3	1.6	80.1	44.7	41.7	44.8	38.6	44.0	1.42	41.7	66.4	2.1	2.3	1.6	72.3	17.42	4351	760	
CV (%)	26.0	34.6	5.7	2.2	16.0	3.7	15.3	2.7		8.7	2.4	29.8	21.3	44.9	1.2	2.4	6.5	7.3	
$LSD_{.05}$	0.2	0.4	3.2	0.7	4.6	1.2	4.1	0.8		2.5	1.1	0.4	0.3	0.5	0.6	0.29	197	39	
P{Dig*Ent}	*	ns	ns	ns	ns	ns	ns	ns		ns	ns	*	ns	ns	ns	ns	ns	ns	

a, z Denote means not significantly different from the greatest and least in the column, respectively, at the 5% level of probability by t-test.

ns, †, *, ** Denote traits with digging-by-entry interaction that were not significant or significant at the 10%, 5%, and 1% levels of probability, respectively, by F-test.

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Table 3. Disease reactions of N98002, N98003, and Brantley compared with released cultivars.

Line	Early leafspot: Defoliation score	Early leafspot: Yield without control	CBR incidence	Sclerotinia incidence	TSWV incidence: All years	TSWV incidence: 2000-2003
N98002	6.60±0.27^{de}	2783±250^{bc}	0.1244±0.1014^{bcd}	0.5512±0.1185^{a}	0.3669±0.0455^{bc}	0.5870±0.0510^{abcd}
N98003	6.62±0.27^{cde}	2608±250^{bcd}	0.1787±0.0694^{bcd}	0.5166±0.0941^{a}	0.3844±0.0457^{abc}	0.5965±0.0511^{abcd}
Brantley	**6.61±0.34^{cde}**	**2384±319^{bcde}**	**0.2858±0.1014^{abc}**	**0.3432±0.1629^{ab}**	**0.4167±0.0500^{ab}**	**0.6250±0.0510^{ab}**
NC 7	**6.86±0.14^{cd}**	**2149±132de**	**0.3376±0.0262^{a}**	**0.5665±0.0511^{a}**	**0.3463±0.0272^{bc}**	**0.6119±0.0468^{abc}**
NC 9	7.10±0.17^{bcd}	2219±163^{cde}	0.2598±0.0275^{bc}	0.4776±0.0687^{a}	0.4782±0.0260^{a}	0.6512±0.0379^{a}
NC 10C	7.08±0.17^{bcd}	1997±163^{e}	0.1941±0.0262^{c}	0.4103±0.0631^{a}	0.4077±0.0366^{ab}	0.6726±0.0565^{a}
NC-V 11	7.21±0.15^{bc}	2327±145^{cde}	0.2230±0.0308^{bc}	0.4657±0.0630^{a}	0.2968±0.0247^{cd}	0.5040±0.0327^{cde}
NC 12C	6.24±0.13^{e}	3013±117^{b}	0.1237±0.0275^{cd}	0.4985±0.0584^{a}	0.3725±0.0257^{bc}	0.6099±0.0403^{abc}
Gregory	6.83±0.14^{cd}	2677±140^{bc}	0.1730±0.0293^{cd}	0.4772±0.0542^{a}	0.2545±0.0221^{d}	0.4546±0.0282^{e}
Perry	6.33±0.19^{e}	2602±184^{bcd}	0.1100±0.0263^{cd}	0.3598±0.0509^{a}	0.3883±0.0244^{b}	0.6514±0.0314^{a}
VA-C 92R	7.60±0.14^{a}	2020±126^{e}	0.3051±0.0326^{ab}	0.3324±0.0689^{ab}	0.3146±0.0348^{bcd}	0.5125±0.0506^{bcde}
VA 98R	7.49±0.18^{ab}	2103±174de	0.4849±0.0563^{a}	0.3194±0.0789^{ab}	0.2839±0.0308^{cd}	0.4830±0.0358^{de}
Wilson	6.69±0.29^{cde}	2358±274^{cde}	0.4889±0.0936^{a}	0.6116±0.1540^{a}	0.2839±0.0493^{bcd}	0.4949±0.0507^{bcde}
GP-NC 343	4.67±0.12^{f}	3412±114^{a}	--	--	--	--
N96076L	--	--	0.0262±0.0431^{d}	0.1341±0.0597^{b}	--	--
PI 576636	--	--	--	--	0.1065±0.0307^{e}	0.2275±0.0405^{f}

a,b,c,d,e,f Means within a column followed by the same letter are not significantly different (P<0.05) by t-test.

Table 4. Blanching characteristics of extra large kernels.

Line	Moisture content before roasting	Moisture content after roasting	Blanching loss	Blanched: Splits	Blanched: Whole kernels	Blanched: Not blanched	Blanched: Partially blanched
	%						
N98002	6.13±0.09^{abc}	4.16±0.11^{abc}	2.34±0.13^{ns}	2.30±0.53^{cd}	86.89±1.14^{abcde}	1.86±0.50^{cde}	7.03±1.40^{abc}
N98003	6.04±0.09^{bcd}	4.18±0.11^{ab}	2.29±0.13^{ns}	2.47±0.53^{abcd}	85.36±1.13^{cde}	2.75±0.50^{abcd}	7.64±1.39^{ab}
Brantley	**6.12±0.12^{abcd}**	**4.46±0.13^{a}**	**2.18±0.16^{ns}**	**2.89±0.67^{abcd}**	**86.81±1.43^{abcde}**	**3.45±0.63^{ab}**	**5.13±1.75^{abc}**
NC 7	**5.98±0.04^{cd}**	**4.10±0.05^{bcd}**	**2.21±0.06^{ns}**	**2.86±0.26^{bcd}**	**84.51±0.56^{e}**	**3.71±0.24^{a}**	**6.61±0.68^{abc}**
NC 9	6.30±0.05^{a}	4.05±0.05^{bcd}	2.12±0.07^{ns}	2.61±0.26^{bcd}	86.41±0.57^{cde}	2.00±0.25^{de}	7.02±0.70^{abc}
NC 10C	6.03±0.04^{cd}	3.94±0.05^{cef}	2.18±0.06^{ns}	2.69±0.23^{bcd}	88.56±0.48^{ab}	1.87±0.21^{de}	4.57±0.60^{c}
NC-V 11	6.15±0.04^{b}	3.89±0.04^{ef}	2.19±0.05^{ns}	2.61±0.22^{cd}	89.15±0.46^{a}	1.64±0.20^{e}	4.70±0.57^{bc}
NC 12C	6.00±0.05^{cd}	4.02±0.06^{bcde}	2.27±0.07^{ns}	2.58±0.30^{cd}	87.04±0.64^{bcd}	2.65±0.28^{bcd}	5.29±0.79^{bc}
Gregory	6.10±0.06^{bcd}	4.08±0.06^{bcd}	2.17±0.08^{ns}	1.85±0.32^{d}	88.90±0.68^{ab}	2.22±0.30^{bcde}	5.25±0.84^{bc}
Perry	5.90±0.07^{d}	4.03±0.08^{bcde}	2.29±0.09^{ns}	2.96±0.38^{abc}	88.95±0.82^{ab}	1.42±0.36^{e}	4.27±1.00^{c}
VA-C 92R	6.07±0.04^{bcd}	3.89±0.04^{ef}	2.09±0.05^{ns}	3.56±0.22^{a}	85.50±0.47^{de}	2.77±0.21^{bc}	6.28±0.58^{abc}
VA 98R	5.98±0.07^{cd}	3.82±0.08^{f}	2.28±0.09^{ns}	2.10±0.38^{cd}	88.85±0.82^{ab}	1.44±0.36^{e}	8.35±1.01^{a}
Wilson	6.02±0.07^{bcd}	3.90±0.09^{def}	2.28±0.10^{ns}	3.56±0.42^{ab}	88.06±0.91^{abc}	1.31±0.40^{e}	5.05±1.12^{bc}

a,b,c,d,e,f,g,h Means within a column followed by the same letter are not significantly different (P<0.05) by t-test.
ns No significant differences among means line effects by F-test (P>0.05).

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Table 5. Blanching characteristics of medium kernels.

Line	Moisture content before roasting	Moisture content after roasting	Blanching loss	Blanched: Splits	Blanched: Whole kernels	Blanched: Not blanched	Blanched: Partially blanched
	%						
N98002	6.18±0.09^{abc}	3.84±0.09^{cd}	1.96±0.20^{b}	4.12±0.74^{abc}	66.92±2.28^{e}	15.20±1.63^{a}	11.91±1.35^{a}
N98003	6.27±0.09^{abc}	4.12±0.09^{a}	2.17±0.19^{ab}	3.86±0.73^{bc}	71.74±2.27^{de}	11.08±1.61^{ab}	11.30±1.34^{ab}
Brantley	**6.14±0.11^{abc}**	**4.17±0.11^{a}**	**2.19±0.25^{ab}**	**2.81±0.92^{c}**	**68.73±2.86^{de}**	**15.75±2.04^{a}**	**10.69±1.69^{abc}**
NC 7	**6.25±0.04^{abc}**	**4.16±0.04^{a}**	**2.19±0.10^{ab}**	**3.88±0.36^{bc}**	**68.74±1.11^{e}**	**13.43±0.79^{a}**	**11.90±0.66^{a}**
NC 9	6.33±0.04^{a}	4.16±0.04^{a}	2.39±0.10^{ab}	3.81±0.37^{bc}	77.65±1.14^{bc}	5.35±0.81^{d}	10.93±0.67^{ab}
NC 10C	6.17±0.04^{c}	3.97±0.04^{abcd}	2.34±0.08^{ab}	5.48±0.31^{a}	81.16±0.97^{a}	4.37±0.69^{d}	6.79±0.57^{d}
NC-V 11	6.29±0.04^{ab}	4.01±0.04^{abc}	2.40±0.08^{a}	4.12±0.30^{bc}	81.60±0.93^{a}	4.86±0.66^{d}	7.17±0.55^{d}
NC 12C	6.17±0.05^{bc}	4.04±0.05^{ab}	2.20±0.11^{ab}	3.39±0.42^{c}	73.13±1.29^{d}	10.82±0.92^{b}	10.62±0.76^{abc}
Gregory	6.23±0.05^{abc}	4.06±0.05^{ab}	2.38±0.12^{ab}	3.78±0.44^{bc}	73.42±1.37^{cd}	9.58±0.98^{b}	11.01±0.81^{ab}
Perry	6.14±0.06^{c}	4.07±0.06^{a}	2.42±0.14^{a}	4.97±0.53^{ab}	78.87±1.63^{ab}	5.82±1.16^{d}	8.06±0.97^{cd}
VA-C 92R	6.20±0.04^{bc}	3.99±0.04^{abc}	2.30±0.08^{ab}	4.34±0.30^{bc}	73.38±0.94^{d}	9.23±0.67^{bc}	10.89±0.56^{ab}
VA 98R	6.20±0.06^{abc}	3.84±0.06^{d}	2.20±0.14^{ab}	4.57±0.53^{abc}	82.30±1.64^{a}	4.32±1.17^{d}	6.76±0.97^{d}
Wilson	6.16±0.07^{abc}	3.89±0.07^{bcd}	2.17±0.16^{ab}	5.03±0.59^{ab}	77.71±1.82^{abc}	6.48±1.30^{cd}	8.75±1.08^{bcd}

a,b,c,d,e Means within a column followed by the same letter are not significantly different (P<0.05) by t-test.

Table 6. Sensory data collected by the USDA-ARS Market Quality and Handling Research Unit, Raleigh, NC, from samples collected from the Virginia-Carolina peanut production area.

Line	Roasted peanut[§†]	Sweet	Bitter	Astringent
	flavor intensity units (fiu) on a 1 to 14 scale			
N98003	3.35±0.24^{bc}	3.36±0.27^{ab}	2.37±0.19^{ab}	2.68±0.18^{b}
Brantley	**3.35±0.13^{c}**	**3.02±0.14^{b}**	**2.68±0.10^{a}**	**3.18±0.10^{a}**
NC 7	**3.52±0.12^{bc}**	**2.74±0.12^{b}**	**2.68±0.09^{a}**	**2.99±0.08^{ab}**
Gregory	4.19±0.28^{a}	2.60±0.29^{b}	2.47±0.20^{ab}	2.93±0.20^{ab}
Florunner	3.80±0.11^{ab}	2.75±0.12^{ab}	2.66±0.08^{a}	3.17±0.08^{a}
Georgia Green	3.81±0.13^{ab}	3.41±0.14^{a}	2.34±0.10^{b}	3.12±0.10^{ab}

a,b,c Means in the same column followed by the same letter are not significantly different (P<0.05) by t-test.

Table 7. Sensory data collected by the USDA-ARS Market Quality and Handling Research Unit, Raleigh, NC, from samples collected from the 2003 Uniform Peanut Performance Test at nine locations.

Line	Roasted peanut[§†]	Sweet	Sweet aromatic	Bitter	Astrin-gent	Dark roast	Raw beany	Woody	Card-board	Fruity[‡]
	flavor intensity units (fiu) on a 1 to 14 scale									
N98003	4.56^{ab}	2.08^{b}	2.95^{b}	3.06^{a}	1.12^{ns}	2.99^{ns}	2.25^{ns}	3.11^{a}	1.40^{ab}	1.19^{ab}
Brantley	**4.38^{b}**	**2.01^{b}**	**2.84^{b}**	**3.10^{a}**	**1.10^{ns}**	**2.76^{ns}**	**2.39^{ns}**	**3.13^{a}**	**1.65^{a}**	**1.49^{ab}**
NC 7	**4.58^{ab}**	**2.03^{b}**	**2.84^{b}**	**3.03^{ab}**	**1.05^{ns}**	**2.70^{ns}**	**2.36^{ns}**	**3.13^{a}**	**1.40^{a}**	**1.04^{b}**
Florunner	4.78^{a}	2.29^{a}	3.09^{a}	2.91^{b}	1.07^{ns}	2.91^{ns}	2.21^{ns}	3.04^{b}	1.13^{b}	1.62^{a}

† Graded samples from Suffolk, VA; Lewiston, NC; Tifton, GA; Headland, AL; Marianna, FL; Stephenville, TX; Denver City, TX; Pearsall, TX; and Fort Cobb, OK tasted.

‡ Graded samples from Lewiston, NC; Headland, AL; Stephenville, TX; Pearsall, TX; and Fort Cobb, OK tasted.

a,b Means in the same column followed by the same letter are not significantly different (P<0.05) by t-test.

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Table 8. Fatty acid composition, iodine values, oleic-linoleic ratios, polysaturated-saturated ratios, and calcium content of seeds grown in the Peanut variety and Quality Evaluation. Adjusted means from analysis of all data on the indicated lines collected since 1986.

Line	Fatty acid contents								Iodine value†	Oleic-to linoleic ratio	Total saturates‡	Poly-unsaturate-to-saturate ratio§	Long-chain saturates¶	Calcium content
	Palmitic (16:0)	Stearic (18:0)	Oleic (18:1)	Linoleic (18:2)	Arachidic (20:0)	Eicosenoic (20:1)	Behenic (22:0)	Lignoceric (24:0)						
	% of total fatty acids								%		%		%	*ppm*
N98002	9.73±0.07^{cd}	2.52±0.06^{g}	48.21±0.32^{fg}	32.37±0.30^{b}	1.31±0.02^{fg}	1.35±0.03^{a}	2.97±0.05^{a}	1.54±0.03^{a}	98.59±0.27^{bc}	1.40±0.28^{cd}	18.07±0.10^{bc}	1.80±0.02^{bc}	5.82±0.09^{ab}	649±31^{cde}
N98003	9.67±0.07^{cd}	2.48±0.06^{g}	48.80±0.30^{f}	32.03±0.28^{bc}	1.29±0.02^{g}	1.32±0.03^{a}	2.94±0.05^{ab}	1.49±0.03^{a}	98.48±0.26^{bc}	1.58±0.27^{cd}	17.86±0.09^{cd}	1.79±0.02^{bc}	5.72±0.08^{abc}	672±31^{bcd}
Brantley	**5.73±0.09^{g}**	**4.15±0.08^{a}**	**79.14±0.39^{a}**	**4.37±0.36^{i}**	**1.69±0.03^{a}**	**1.35±0.03^{a}**	**2.49±0.06^{f}**	**1.10±0.04^{f}**	**76.68±0.33^{i}**	**21.75±0.34^{a}**	**15.16±0.11^{g}**	**0.29±0.02^{h}**	**5.28±0.10^{de}**	**667±39^{bcde}**
NC 7	**8.76±0.04^{f}**	**3.67±0.03^{b}**	**55.89±0.16^{b}**	**25.11±0.15^{h}**	**1.63±0.01^{b}**	**1.05±0.01^{c}**	**2.77±0.03^{cd}**	**1.15±0.02^{f}**	**92.36±0.13^{h}**	**2.30±0.14^{b}**	**17.99±0.05^{bc}**	**1.40±0.01^{g}**	**5.56±0.04^{c}**	**658±17^{cde}**
NC 9	10.13±0.06^{b}	2.71±0.05^{f}	47.07±0.24^{h}	33.31±0.22^{a}	1.33±0.02^{fg}	1.22±0.02^{b}	2.82±0.04^{bcd}	1.51±0.03^{a}	99.06±0.20^{ab}	1.41±0.21^{cd}	18.49±0.07^{a}	1.81±0.01^{bc}	5.66±0.06^{bc}	565±35^{ef}
NC 10C	9.77±0.04^{c}	3.16±0.03^{c}	48.80±0.16^{f}	31.68±0.15^{c}	1.48±0.01^{cd}	1.04±0.01^{c}	2.77±0.03^{cd}	1.30±0.02^{d}	97.65±0.14^{d}	1.54±0.14^{cd}	18.49±0.05^{a}	1.72±0.01^{d}	5.55±0.04^{c}	653±18^{cde}
NC-V 11	10.36±0.04^{a}	2.39±0.03^{g}	47.60±0.17^{gh}	33.13±0.16^{a}	1.19±0.01^{h}	1.23±0.01^{b}	2.58±0.03^{f}	1.49±0.02^{a}	99.32±0.14^{a}	1.40±0.15^{d}	18.02±0.05^{bc}	1.85±0.01^{a}	5.26±0.04^{de}	647±20^{cde}
NC 12C	9.65±0.05^{cd}	3.07±0.04^{cd}	51.61±0.20^{d}	29.27±0.19^{e}	1.46±0.01^{de}	1.05±0.02^{c}	2.67±0.03^{e}	1.22±0.02^{e}	95.90±0.17^{f}	1.80±0.18^{cd}	18.08±0.06^{b}	1.62±0.01^{e}	5.36±0.05^{d}	576±20^{f}
Gregory	8.94±0.05^{e}	2.95±0.05^{e}	52.94±0.23^{c}	28.36±0.21^{f}	1.43±0.02^{e}	1.25±0.02^{b}	2.74±0.04^{de}	1.41±0.02^{bc}	95.63±0.19^{f}	1.82±0.20^{bcd}	17.46±0.07^{f}	1.63±0.01^{e}	5.58±0.06^{c}	638±23^{cde}
Perry	9.72±0.05^{cd}	2.62±0.05^{f}	48.72±0.24^{f}	32.04±0.22^{bc}	1.36±0.02^{f}	1.23±0.02^{b}	2.85±0.04^{abc}	1.48±0.02^{a}	98.36±0.20^{c}	1.46±0.21^{cd}	18.02±0.07^{bc}	1.78±0.01^{c}	5.69±0.06^{bc}	682±23^{bc}
VA-C 92R	9.60±0.04^{d}	3.06±0.03^{d}	49.97±0.16^{e}	30.31±0.15^{d}	1.51±0.01^{c}	1.20±0.01^{b}	2.96±0.03^{a}	1.41±0.02^{bc}	96.41±0.14^{e}	1.66±0.14^{cd}	18.54±0.05^{a}	1.64±0.01^{e}	5.87±0.04^{a}	868±18^{a}
VA 98R	10.15±0.05^{b}	2.45±0.05^{g}	48.54±0.24^{f}	32.48±0.22^{b}	1.20±0.02^{h}	1.21±0.02^{b}	2.53±0.04^{f}	1.47±0.03^{ab}	98.95±0.20^{ab}	1.42±0.21^{cd}	17.78±0.07^{de}	1.83±0.01^{ab}	5.19±0.06^{e}	617±23^{def}
Wilson	8.80±0.06^{ef}	3.12±0.05^{cd}	53.49±0.26^{c}	27.68±0.24^{g}	1.48±0.02^{cd}	1.23±0.02^{b}	2.82±0.04^{cd}	1.39±0.03^{c}	94.91±0.22^{g}	2.01±0.23^{bc}	17.61±0.08^{ef}	1.58±0.02^{f}	5.70±0.07^{bc}	745±26^{b}

a,b,c,d,e,f,g,h Means within a column followed by the same letter are not significantly different (P<0.05) by t-test.

ns No significant differences among means line effects by F-test (P>0.05).

† Weighted sum of oleic, linoleic, and eicosenoic acid contents [0.8601(18:1)+1.7321(18:2)+0.7854(20:1)]

‡ Sum of palmitic, stearic, arachidic, behenic, and lignoceric acid contents.

§ Ratio of linoleic acid content to total saturated fatty acid content.

¶ Sum of arachidic, behenic, and lignoceric acid contents.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued *(7 U.S.C. 2421)*. The information is held confidential until the certificate is issued *(7 U.S.C. 2426)*.

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
North Carolina State University **U.S. Government as represented by the Secretary of Agriculture**	**N00090ol**	**Brantley**
4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*	5. TELEPHONE *(Include area code)*	6. FAX *(Include area code)*
Office of Technology Transfer, Box 8210 **N.C. State University, Raleigh, NC 27695-8210** **USA**	**(919) 515-7199**	**(919) 515-3773**
	7. PVPO NUMBER **200600071**	

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. **If no, please explain.** [X] YES [ ] NO

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? **If no, give name of country.** [X] YES [ ] NO

10. Is the applicant the original owner? [X] YES [ ] NO **If no, please answer one of the following:**

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?
[ ] YES [ ] NO **If no, give name of country**

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?
[ ] YES [ ] NO **If no, give name of country**

11. Additional explanation on ownership *(Trace ownership from original breeder to current owner. Use the reverse for extra space if needed)*:

This variety was jointly developed and is co-owned by North Carolina State University and the U.S. Government as represented by the U.S. Secretary of Agriculture.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.